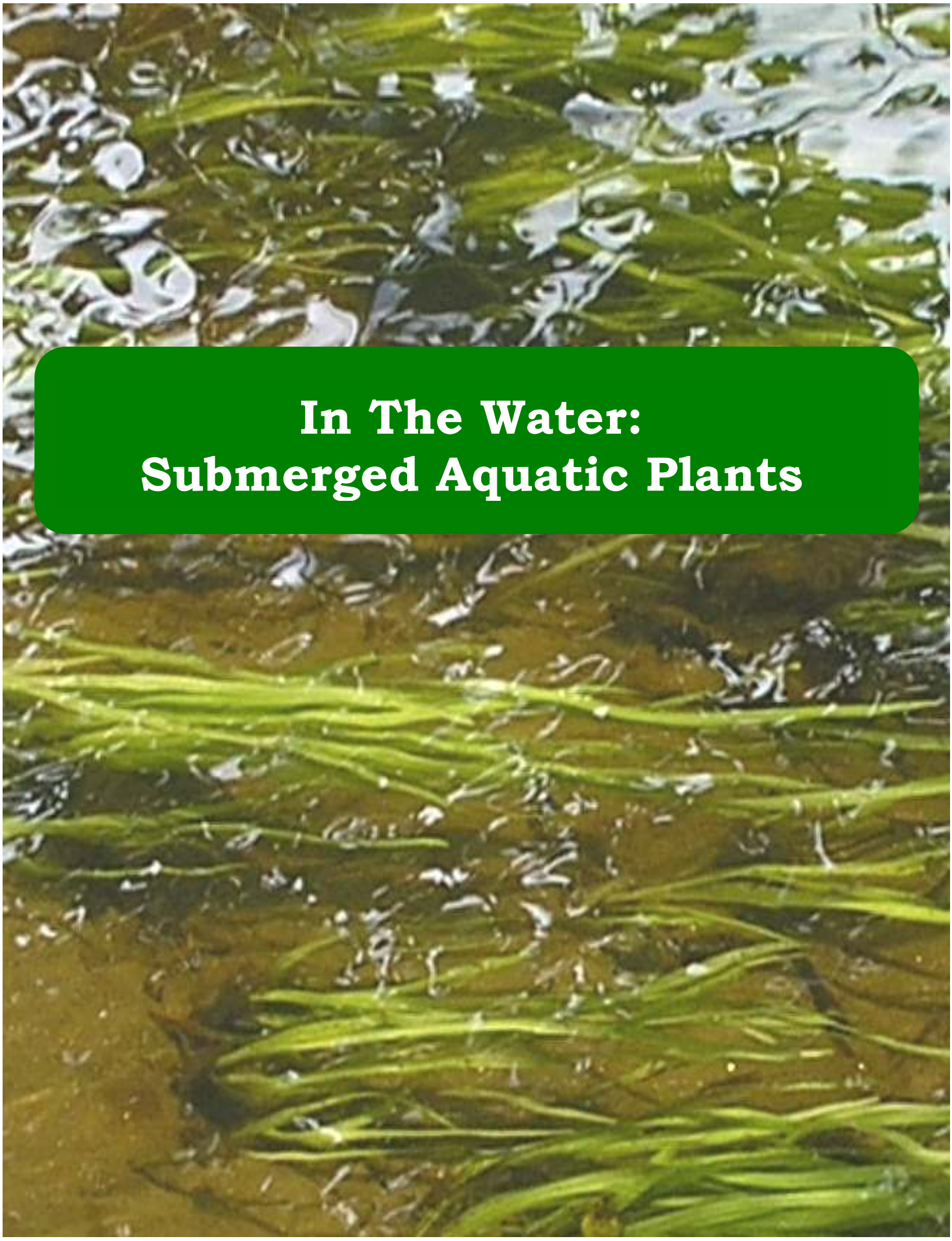

In The Water: Submerged Aquatic Plants

BLADDERWORT
Utricularia spp.

- **Status:** Native. Approximately 10 species in New Hampshire.
- **Habitat:** Lakes, ponds, slow-moving streams and rivers, bogs.
- **Height:** 2-3 feet long.
- **Stem:** Long, slender, flexible, branched, typically becoming detached from roots and free-floating.
- **Leaves:** Alternate, filamentous, finely-forked, with attached "bladders."
- **Flower:** Stalks occurring at irregular intervals along stem. Each stalk bearing 6-20 small, pink to yellow, two-lipped "snapdragon-like" flowers and emerging several inches out of the water or mud.
- **Flowering Period:** June into September.
- **Fruit:** Capsule containing many seeds.
- **Value:** Provides food and cover for fish. Since they are free-floating, they can grow in areas with very loose sediment providing needed fish habitat in areas that are not readily colonized by rooted plants.

  Similar Species: Fanwort (*Cabomba caroliniana*); buttercup (*Ranunculus spp.*); coontail (*Ceratophyllum spp.*), milfoil (*Myriophyllum spp.*). Bladderwort may be distinguished from these plants by the alternate, forked leaves branching from the base into 2 main divisions and presence of the "bladders" on the leaves. (Smagula and Connor, 2007)

  Bladderwort may resemble the milfoils, but there are two distinguishing features. One is the bladders on the leaves, the other is that milfoils have feather-like leaves that have one central leaf stem with nearly opposite unbranched leaflets. The leaflets of bladderwort are more branched and forked. (Smagula and Connor, 2007)

  This carnivorous plant has trigger hairs on each bladder that open a trap-door and suck in water along with the organism that triggered the reaction. These organisms can range from insect larvae to tiny zooplankton. Once inside the bladders, the organism is digested by enzymes found there. Special cells then take the digested material from the bladders and move it to the stem. (Smagula and Connor, 2007)

COONTAIL/HORNWORT
Ceratophyllum demersum

- **Status:** Native
- **Habitat:** Lakes, ponds, slow-moving streams and rivers.
- **Height:** Variable according to water depth.
- **Stem:** Long, toothed, trailing, much branched.
- **Leaves:** Whorled, smooth, up to 1 ½ inches long, 3 forks, nearly thread-like, flattened and toothed segments.
- **Flower:** Tiny, purplish-green, found where the leaf attaches to the stem and stays entirely submerged. Male and female occurring separately.
- **Flowering Period:** July through September.
- **Fruit:** Dark brown seed, approximately ¼ inch long, with two spines at the base and one at the tip.
- **Value:** The stiff whorls of leaves offer habitat for many species, especially during the winter when many other plants are reduced to roots and rhizomes. Both foliage and fruit are grazed by waterfowl. Bushy stems are home to many invertebrates and provide important shelter and foraging opportunities for fish.
- **Similar Species:** Mermaid-weed (*Proserpinaca palustris*); fanwort (*Cabomba caroliniana*); buttercup (*Ranunculus spp.*). Coontail may be distinguished from these plants by its whorled, toothed leaves, its tiny sessile axillary flowers and beaked fruits. (Smagula and Connor, 2007)

  The whorled leaves often cause the plant to be confused with water milfoil. This plant has a plastic-like feel and leaves tend to be thickly clustered at the tips of the stems. The leaves are completely whorled around the stem and forked; milfoil leaves are distinctly feather-like. (Smagula and Connor, 2007)

VARIABLE WATER MILFOIL
Myriophyllum heterophyllum

- **Status: Non-Native/Exotic, Invasive. This species is prohibited in New Hampshire.**
- **Habitat:** Lakes, ponds, slow-moving streams and rivers.
- **Height:** Slender, flexible, long (up to 15 feet). Tip often emerging above water when flowering. Data from a University of New Hampshire study can suggest that variable water milfoil can grow an inch per day.
- **Stem:** Round, thick, reddish. If broken in half the stem resembles a "wheel spoke".
- **Leaves:** Mostly submerged, opposite or in whorls of 4 to 6 and can grow up to 2 inches long. Leaves on upper stem are whorled, and may be whorled or alternate on lower stem. Emerged leaves occurring only toward the stem tips.
- **Flower:** Small, inconspicuous, brownish, occurring singly in the axils of the upper leaves, usually above water during flowering.
- **Flowering Period:** In July, flowers emerge from the water and are in a spike up to 6 inches tall. Can also form a succulent amphibious form when water levels recede.
- **Fruit:** Very small, four-lobed, nutlike.
- **Similar Species:** Mermaid-weed (*Proserpinaca palustris*), fanwort (*Cabomba caroliniana*), buttercup (*Ranunculus spp.*), coontail (*Ceratophyllum spp.*). Variable milfoil may be distinguished from these plants by the numerous, scattered, finely pinnately dissected leaves and floating or upright stem. (Smagula and Connor, 2007)

  The plant is more robust than the other water milfoil species. It has a very thick and heavy stem. It can only be positively identified with the flower present or by DNA analysis. (Smagula and Connor, 2007)

  Fragments of variable milfoil are made by passing boats, wave action, and auto-fragmentation. These fragments may float freely and spread for one or two weeks as they generate roots. Once roots make contact with sediment, the fragment attaches; the roots spread laterally and expand the footprint of the colony. With one fragment an entire colony can arise. Colonies can outcompete native plants, reducing biodiversity. (Smagula and Connor, 2007)

WATERWEED/DITCHMOSS
Elodea Canadensis, E. nuttallii

- **Status:** Native
- **Habitat:** Lakes, ponds, slow-moving streams and rivers.
- **Height:** Up to 2 feet long; occasionally forming dense colonies.
- **Stem:** Slender, smooth, branched.
- **Leaves:** Long, upper and middle leaves in whorls of 3 with very finely-toothed margins. Those of the male plants linear or lanceolate, pointed at the tip, up to ½ inch long. Those of the female plants broadly lanceolate, rounded or slightly pointed at the tip, up to 5/8 inch long.
- **Flower:** Green or white with 3 petals.
- **Flowering Period:** July to September.
- **Fruit:** A few to many-seeded cylindrical capsule.
- **Value:** Branching stems offer valuable habitat and grazing opportunities for fish. Also provides food for muskrats and waterfowl. They can eat the plant itself or feed on a wide variety of invertebrates that use the plant as habitat.
- **Similar Species:** Commonly mistaken for its invasive relative, Brazillian elodea. It can be distinguished by its smooth leaf margins.

  There are two common species of waterweed in New Hampshire, *E.canadensis* and *E.nuttalii*. *Elodea canadensis* tends to have slightly broader leaves with blunt tips, whereas E.nuttalii tends to have thinner, more needle-like leaves that are pointed at the tips. (Smagula and Connor, 2007)

  E.nuttalii can be found in alkaline to acidic environments, and *E.canadensis* can be found in alkaline or neutral systems. (Smagula and Connor, 2007)

WILD CELERY/TAPE GRASS
Vallisneria americana

- **Status:** Native
- **Habitat:** Lakes, ponds, slow-moving streams and rivers. In water 4 - 6 feet deep.
- **Height:** 1-3 feet long.
- **Stem:** Slender, embedded horizontally in the mud near the surface and usually rooting at intervals.
- **Leaves:** Narrow, ribbon-like, 1-3 feet in length, with a light-colored center stripe, mostly submerged with the tips floating.
- **Flower:** Unisexual; the female flower solitary and floating at the surface at the end of a long stalk. The male flower on another plant, submerged and attached to a short stalk near the bottom, breaking off and floating to the surface at flowering time.
- **Flowering Period:** July to October.
- **Fruit:** Cylindrical pod up to 2 inches long, attached to a long stalk which coils up, drawing the fruit under water to mature.
- **Value:** Source of food for waterfowl. All portions of the plant are consumed; foliage, rhizomes, tubers, and fruit. Muskrat are also known to graze on it. Beds provide shade, shelter, and food for fish.
- **Similar Species:** Often confused with the submerged leaves of bur-reed. Tape grass can be distinguished by its heavy air-filled leaves, vertically veined centers, and lightly veined edges. Unlike bur-reed, this plant has no rib on the back of the leaf. (Smagula and Connor, 2007)

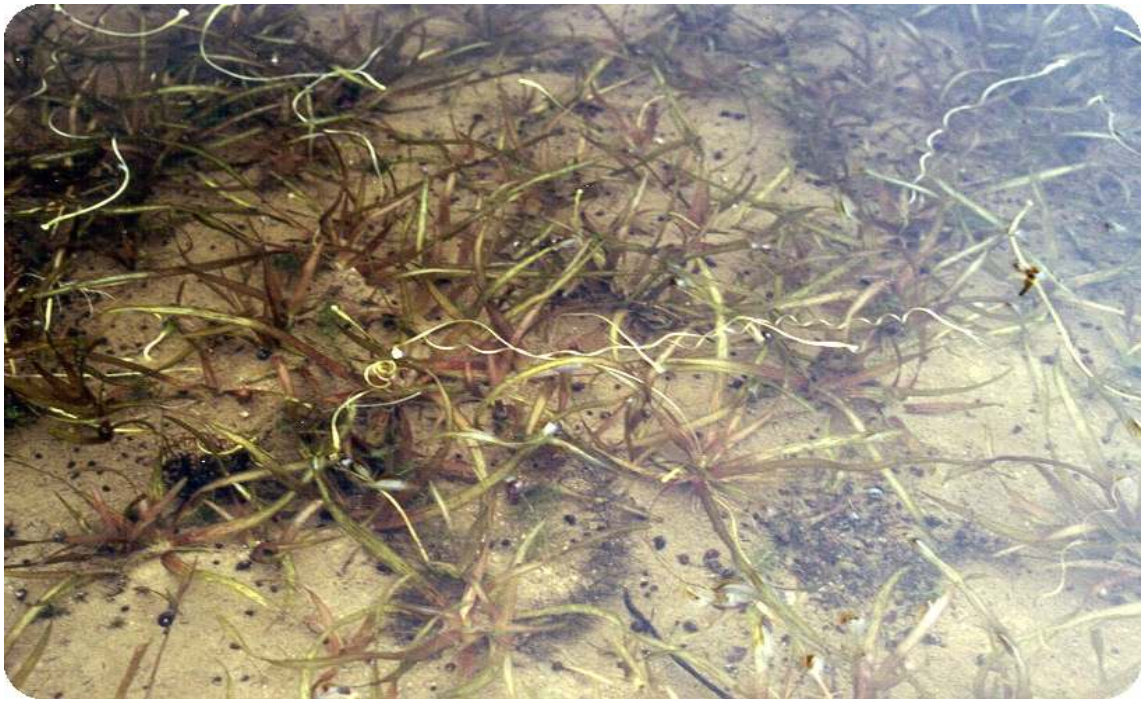

Photo courtesy of Amy Smagula